

THE LONGITUDINAL LINES ON BEETLE ELYTRA:  
A DEFINITION OF STRIA.

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## ABSTRACT

Considerable confusion exists in the literature and in the general interpretation of the term "stria". This terminology is discussed, and a more precise definition is provided.

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What should coleopterists call the longitudinal lines on the elytra of a beetle? Does that seem too elementary a question? You can get different answers, some confusion, and some evasion when you ask various coleopterists. And you'll not find an adequate definition for the most commonly used term, stria, when you look at the literature.

I am speaking of the longitudinal lines (grooves, rows of punctures, etc.) on beetle elytra which are separated by the intervals (longitudinal areas). Most beetles have 9-11 lines, some have more, some less, and some, such as the Coccinellidae, have none. These lines are homologous, even though they may vary in number and though a line may be composed of simple punctures, punctures in depressions, punctures connected by a very shallow to very deep groove, setae, tubercles, a very fine inscribed line, a shallow to deep groove, or combinations of some of these. The morphological basis for these intervals and lines is well known. Briefly, the intervals are formed from the primary and secondary veins of the developing pupal forewings, and the longitudinal lines are external manifestations of rows of columellae, cuticular connections between the dorsal and ventral surfaces of the elytra; Doyen (1966:122) discussed this elytral morphology in *Tenebrio molitor* and listed background literature.

Coleopterists do not agree on a term for these longitudinal lines of the elytra. The word *stria* comes to mind, of course, and many (most?) coleopterists use *stria* in the broad or "generic" sense; i.e. whether the elytral lines are composed of punctures, grooves, setae, etc. However, other coleopterists use *stria* for elytral lines in the narrow or "specific" sense; i.e. only when such lines are grooves. Here are 3 examples of uses of *stria* and *striate* and the questions they raise: *elytra with striae* or *elytra striate* means either that the elytra have longitudinal lines of something or other or that the elytra have lines which are grooves; *elytra punctate-striate* or *elytra punctostriate* means either that the longitudinal lines are composed of punctures or that the lines are grooves with punctures; and *elytra with-*

out *striae* or *elytra not striate* means either that the longitudinal lines are not present or that the elytra do not have grooves. How, then, is a reader to know what an author means by *elytral stria*? He learns it from the general context of keys or descriptions. This should not be so. If these longitudinal lines on the elytra are indeed homologous, then they should have a generic term assigned to them, whether they are composed of punctures, grooves, setae, etc.

I contend that in English there is no adequately defined generic term for these lines. The word *stria*, certainly the first choice as a generic term because of past usage, is, however, limited in its definitions. In insect morphology *stria* means groove (=sulcus, furrow). Latin and English dictionaries define it in that way, but some give line or stripe as an alternate meaning. Torre-Bueno (1937) defined *stria* as groove, but also stated that *stria* is "in Coleoptera, a longitudinal depressed line or furrow, frequently punctured, extending from the base to the apex of the elytra." One constantly finds the words "depressed" or "furrow" when looking for definitions or elytral *stria*. Though these limiting words might be correct for a definition of *stria* in the usual entomological sense, they are not correct for a definition of *elytral stria* in the generic sense. If we can agree on this term *stria* for the elytral lines, all we need do is eliminate the words furrow, sulcus, groove, or depressed from its definition. We can change Torre-Bueno's definition to read "in Coleoptera, a longitudinal line extending from base to apex of elytra, frequently sulcate, punctate, setate, etc." *Stria* would still mean groove or sulcus when used for non-beetles or for any part of a beetle except the elytra.

The term *elytral stria* in the generic sense would not cause severe problems. When the striae are composed of punctures only, we would say *elytral striae punctate* or *elytra punctostriate*; when the striae are composed of only grooves, we would say *elytral striae grooved* or *elytral striae sulcate* or *elytra sulcostriate*; when the striae are composed of both punctures and grooves, we would say *elytral striae punctured and grooved* or *elytral striae punctate-sulcate* or *elytra sulcopunctostriate*. Many other examples could be given. However, the phrase *elytral stria striate* must not be used; *elytral stria sulcate* would be appropriate. This is obvious. Unfortunately the combination *stria sulcate* would sound redundant or even impossible to a grammarian, but we coleopterists will have to live with such criticism. What is the alternative? A new term could be coined, or a descriptive phrase, like elytral longitudinal line, could be used. I favor *elytral stria* as the correct generic term.

#### LITERATURE CITED

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